

Frequently Asked Questions About Smallpox and Smallpox Vaccine for Healthcare Providers

Q: Is smallpox something that I need to worry about?

A: Though there is no naturally occurring smallpox in the world today, certain nations are known to have smallpox. The concern is that other nations may have obtained stocks of this virus and may be prepared to use it against the United States in a terrorist action.

Q: How dangerous is smallpox?

A: In the past, smallpox was fatal in 30% of those that were infected.

Q: How contagious is smallpox?

A: Smallpox is not as infectious as, say, measles or chickenpox. You are at greatest risk of catching smallpox if you have had close contact with someone with the disease.

Q: How is smallpox spread?

A: Smallpox is spread by respiratory droplets with close contact and occasionally can be airborne. Smallpox can also be transmitted through direct contact with secretions or scabs.

Q: What are appropriate precautions to take when caring for a smallpox patient?

A: An N-95 mask properly fitted with no face seal leakage is appropriate respiratory protection. The provider also needs to wear appropriate contact precautions including splash protection for the eye and mucous membrane exposures and appropriate gloves and barrier gowns.

Q: When are smallpox patients infectious?

A: Smallpox patients are infectious at about the time the rash appears or just shortly before then. The rash first appears on the extremities, face and forearms. Though there is an earlier prodromal illness of several days, which mimics influenza, the patient is not contagious during this time.

Q: What distinguishes the rash of smallpox from the rash of chickenpox?

A: The rash of varicella generally begins on the trunk and the lesions progress in a crop-like fashion (that is new lesions appear as old lesions beginning to crust over and dry). Smallpox is a more synchronous rash in that all of the lesions are at the same stage of development on the same part of the body. While chickenpox begins on the trunk, the rash of smallpox usually begins on the face and extremities. The prodromal illness of chickenpox or varicella is fairly mild in comparison with smallpox, which mimics severe influenza-like illness. [Click here for smallpox and chickenpox images.](#)

Q: If I see a case that I suspect may be smallpox, what should I do?

A: Immediately place a mask on the patient and confine the patient to an isolation room, preferably one with negative pressure. Healthcare workers should wear an N-95 mask or a Powered Air-Purifying Respirator (PAPR) and use appropriate contact precautions. The hospital's infection control and infectious disease staff should be notified immediately. Your local health department should be notified immediately.

Q: Is it possible to get smallpox off the clothes of individuals who have the disease?

A: A limited number of cases historically have come from contact with significantly contaminated linens. Thus proper decontamination of linen and proper handling of linen is critical to avoid additional cases. Infection control personnel must be involved with linen/belongings handling procedures.

Q: What is the risk to my family if I am caring for a smallpox patient at work?

A: If the healthcare worker is appropriately vaccinated and is wearing appropriate contact precautions during patient care and practicing good hand washing, the risk of transmission to other family members is essentially zero.

Q: Are there people that are at higher risk for smallpox or smallpox vaccine complications?

A: Yes, any patient that has a compromised immune system from any recognized or unrecognized immunodeficiency, pregnancy, patients with atopic dermatitis and other conditions are at a significantly higher risk for complications from both the disease and vaccine.

Q: If I had smallpox vaccine more than 25-30 years ago, do I still have any protection?

A: You do not have any protection against contracting the disease. It is recommended that people who were vaccinated in the past be re-vaccinated during a smallpox outbreak.

Q: How is the smallpox vaccine administered?

A: The vaccine is given using a bifurcated (two-pronged) needle that is dipped into the vaccine solution. When removed, the needle retains a droplet of the vaccine. The needle is used to prick the skin 15 times in a few seconds. The pricking is not deep, but it will cause a sore spot and one or two droplets of blood to form. The vaccine usually is given in the upper arm.

If the vaccination is successful, a red and itchy bump develops at the vaccine site in three or four days. In the first week, the bump becomes a large blister, fills with pus, and begins to drain. During the second week, the blister begins to dry up and a scab forms. The scab falls off in the third week, leaving a small scar. People who are being vaccinated for the first time have a stronger reaction than those who are being revaccinated. The following pictures show the progression of the site where the vaccine is given.

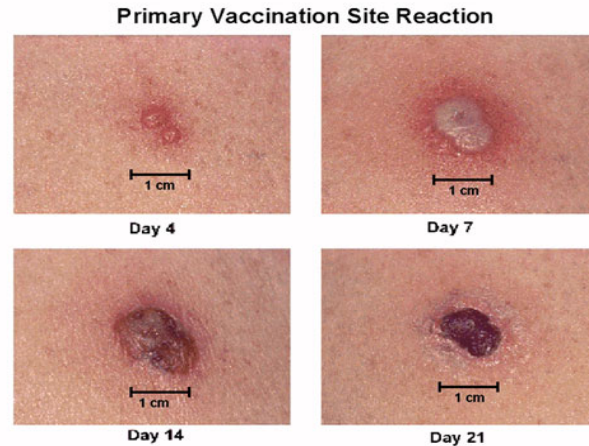


Photo courtesy of CDC

Q: Can I get smallpox from the smallpox vaccine?

A: No, the smallpox vaccine is vaccinia virus, a relative of cowpox virus, and is closely related to smallpox. There is no risk of actually developing smallpox from the vaccine.

Q: What can I expect the week following vaccination with smallpox vaccine?

A: Vaccine side effects vary significantly from person to person, however it is normal to have a blister at the vaccination site with some local tenderness and some redness. Influenza-like symptoms are relatively common including fever, muscle aches and mild headache. Any other more significant or severe symptoms should prompt evaluation by a medical provider.

Q: What are the complications of the vaccine?

A: The complications of the vaccine range from a blister at the site, (which is expected and indicates a successful vaccination) to significant swelling and pain at the vaccination site, to more serious complications such as severe skin infections and encephalitis (swelling of the brain). Severe complications will most likely occur in those recipients with atopic dermatitis or other underlying health problems, either recognized or unrecognized. There is also a risk that approximately 1 in 1,000,000 patients will die from the vaccine.

Q: Is there anything that can be done to treat vaccine related complications?

A: Vaccinia immune globulin (VIG) is available currently in limited supplies at the Centers for Disease Control and Prevention (CDC) under an Investigational New Drug (IND) protocol through the CDC. For those patients having a severe reaction to the vaccine, VIG may be given to help lessen the effects. VIG is not effective at preventing or reducing the severity of the encephalitis that is associated with vaccination. Cidofovir, an antiviral agent, can also be used to treat complications. This drug is also under an IND protocol through CDC.

Q: Is vaccine after exposure to smallpox effective?

A: Yes, postexposure vaccination is effective as long as it occurs within 3-4 days after exposure - the earlier one is vaccinated (for example less than 2 days after exposure), the less likelihood there is of serious disease.

Q: Can I spread the vaccinia virus on to others?

A: Vaccinia is spread by touching a vaccination site before it has healed or by touching bandages or clothing that have become contaminated with live virus from the vaccination site. If you have an active blister and contaminate another person, they can develop the same side effects and reactions as if they had the vaccine themselves. Vaccinia can not be spread through airborne contagion.

Q: As a healthcare worker, if I get the vaccine, is there a risk to my patients?

A: Healthcare workers can continue to care for patients, however the vaccine site should be covered with a semi-permeable dressing and checked daily by a medical staff person. Thorough hand washing after contact with the vaccination site is extremely important.

Q: Is the vaccine currently available a new vaccine for smallpox?

A: No. The currently available vaccine is vaccine stock which was manufactured in the 1970s and early 1980s and has been held by the U.S. government and other sources. Production is ongoing of a vaccinia-based vaccine which uses cell culture techniques. The safety profile of this new vaccine is not expected to be significantly different from the old vaccine, however studies are ongoing to determine any differences in the side effects.

Q: As a healthcare provider, would I be among the first people vaccinated in case of a smallpox outbreak?

A: Yes. Healthcare providers and other members of high-risk groups, which might expect to be exposed to smallpox patients during the course of their normal job duties, will receive priority for vaccination from the Department of Health.

Q: Are plans in place to vaccinate the entire community if needed?

A: Plans are underway for the entire population to be vaccinated within 10 days of detection of a widespread outbreak of smallpox. The extent and scope of vaccination will vary depending on the situation. Initially contacts of cases, contacts of contacts, and health care providers will be vaccinated. Other persons would be targeted, up to and including the entire population, dependent on the circumstances.

Q: Where can I get more information about smallpox?

A: For more information about smallpox and bioterrorism, visit the Tennessee Department of Health's website www.state.tn.us.health and click on "bioterrorism" or visit the CDC's website at www.bt.cdc.gov/agent/smallpox/index.asp.